

PX 8

Exhibit A

[REDACTED]

Date: January 9, 2017
From: [REDACTED]
Subject: [REDACTED]: Telegram ICO

Context

We were introduced to Telegram via [REDACTED] late last week, and Monday morning a subset [REDACTED] met with Telegram founder/CEO Pavel Durov via Zoom to discuss the company's new Ethereum competitor ("Telegram Open Network/TON") and corresponding cryptocurrency ("Grams/GRM").

Telegram now has 180M MAU (up from 100M last year) and plans to leverage its large user base to launch a cryptocurrency that is more scalable and accessible to mass market users.

The private pre-sale will raise \$600M, and is currently 3x oversubscribed with minimum check size \$20M. The deadline to indicate [REDACTED]'s interest is tomorrow (Wednesday).

While we are leaning in, several references on the technology and opportunity are still in flight, so we are not yet ready to make a recommendation. Given a short fuse, we are distributing this memo which frames the investment opportunity absent these references.

Smart Contract Blockchains

Unlike the Bitcoin blockchain which is optimized toward a store of value use-case, smart contract blockchains such as Ethereum support arbitrary computation and thus enable a broader range of decentralized applications (so called "dApps") such as crowdfunding (e.g. ICOs), digital asset registries (e.g. Cryptokitties), and sharing economies for computational resources (e.g. Filecoin, Orchid), with many other promising applications likely to reveal themselves over time.

Although smart contract blockchains hold promise, today they are frustratingly unscalable proof-of-concepts. This lack of scalability is in part by design: whereas a conventional distributed system might execute disparate small computations across 1000 nodes to accomplish a larger computation, a blockchain system would repeat *the same* small computation on 1000 nodes to gain consensus about that small computation - a 1,000,000-fold less efficient use of compute. As this example illustrates, blockchains trade computational scalability for secure + decentralized consensus.

Academic and industry research is underway to improve scalability while minimizing the impact on decentralization/security. In Ethereum's case, there is a roadmap to achieve greater scalability but on a slow multi-year timeline due to the lack of a focused and cohesive engineering team.

Telegram Open Network (TON)

Telegram CTO Nikolai Durov and team were originally planning to integrate Ethereum into the Telegram app, but having run into scalability challenges they instead devised a new smart contract blockchain that leverages leading research in blockchain sharding, cross-shard communication, and other areas to deliver a more scalable alternative to Ethereum. Telegram also plans to build related services such as decentralized storage, VPN, DNS, etc. The TON blockchain will have a native cryptocurrency token - the Gram (GRM).

██████████ have digested the whitepaper and are enthusiastic about the TON approach ██████████@██████████ is cautiously optimistic, which we interpret positively given he is normally an extreme skeptic (see Appendix A). We are also running down additional expert references.

Investment Thesis

An investment in the GRM currency rests on:

- 1) The potential to build a superior Ethereum-like smart contract blockchain (TON).
- 2) Telegram's ability to credibly build TON.
- 3) Leveraging Telegram's 180M (and growing) MAU to bootstrap TON usage and GRM acceptance.
- 4) The premise that a widely-used smart contract blockchain (TON) will correspond to a valuable cryptocurrency (GRM).

Team

Telegram was founded by brothers Pavel Durov (CEO) and Nikolai Durov (CTO). The brothers previously co-founded VK, the Facebook of Russia.

Pavel is a self-professed libertarian and has strong belief in privacy and individual sovereignty. After refusing to cooperate with Russian government data requests, he was ousted from VK and effectively forced to leave the country. He and Nikolai then founded Telegram, which they fully own and have funded with ~\$200M of personal capital.

Nikolai is a mathematician and world-class programmer. In addition to being CTO and lead engineer of Telegram and VK, Nikolai was a two-time ACM world programming champion ('00-'01), three-time international math olympiad gold medalist ('96-'98), four-time international informatics olympiad gold/silver medalist ('95-'98).

In addition, Telegram has a 15-person engineering team which includes many other world class engineers and ACM/IMO/IIO medalists.

Ethereum and many other existing blockchain teams have strong top 1% IQs but lack real distributed systems engineering experience. These early teams also skew quirky and are generally struggling to recruit and create cohesive teams. Telegram's team seems experienced, special, and plausibly suited to building scalable blockchain systems more quickly and capably than the incumbents.

Telegram

The Telegram app has 180M MAU (up from 100M MAU last year), adding 500K users per day. The app is highly penetrated in many Middle Eastern, Eastern European, and Central Asian countries, but weaker in

Whatsapp strong countries and the US/UK. High penetration is correlated with higher engagement - higher time spent, higher number of sessions, higher stickiness, higher open rates. They are starting to grow in Brazil and India. As they tip in more countries their engagement will likely only grow. (See Appendix B for more detailed analysis from [REDACTED]).

Importantly, Telegram is increasingly used as the mobile messaging and social platform for large communities, particularly in the cryptocurrency niche. For example, 84% of blockchain projects have an active Telegram community. Forbes and other media outlets have called Telegram the “cryptocurrency world’s preferred messaging app” and “as ubiquitous to the cryptocurrency world as Snapchat is to a teenager”. (See Appendix C for example communities).

Telegram’s scale broadly and within the cryptocurrency niche should give Telegram an unfair advantage to bootstrap usage and acceptance of its new cryptocurrency.

Grams (GRM)

The Grams currency will be used both as a general purpose currency (to buy and sell products and services) and as a blockchain-specific currency (to purchase compute on the TON blockchain and access its decentralized app ecosystem).

A GRM wallet will be incorporated into the Telegram app, which will enable 180M and growing MAU to easily access and use GRM currency. Telegram will also act like a “browser” for dApps (such as Cryptokitties).

Token Sale

5B Gram tokens will be minted in the genesis block, of which 2.2B are being sold to investors. Gram tokens follow an exponentially increasing price beginning at \$0.10 per token and scaling to \$0.90 per token. If the full \$600M block is purchased in the pre-sale then 1.95B tokens will be sold at an average price of \$0.31 per token implying a network value of \$1.54B.

Value of a Smart Contract Currency

In the short term, smart contract currencies like Telegram/GRM will be priced on a speculative basis, largely relative to BTC (\$258B) and ETH (\$121B). Long term, there are three credible points of view on the value of smart contract currencies:

1. Smart contract currencies will have low value e.g. 1% of Bitcoin. Although such currencies gain significant usage, people prefer holding all their value in Bitcoin, relegating smart contract currencies to be high velocity intermediaries that do not retain much value.
2. Smart contract currencies will have medium value e.g. 10% of Bitcoin. Smart contract currencies have low fundamental utility value (~1%), but the largest platforms additionally accrue “store of value” premium as a hedge and diversification from Bitcoin (e.g. silver/oil in relation to Bitcoin’s gold).
3. A smart contract currency has massive value e.g. 100% of Bitcoin. In this scenario, a smart contract currency is able to displace Bitcoin as a primary store of value.

In our view, scenario #2 is the most plausible: a small number of winning smart contract platforms are likely to be valued as a double digit % of Bitcoin.

Today, there are many smart contract platforms, most of which are not seeing usage beyond speculation: Ethereum (\$121B), Cardano (\$23B), NEO (\$7B), EOS (\$5B), QTUM (\$4B), etc.

In this (admittedly speculative) environment and at \$1.54B entry price, there is a plausible 10-50x return possible for [REDACTED].

Recommendation

We are not yet ready to make a recommendation. Several references on the technology and opportunity are still in flight, but given a short fuse we wanted to distribute this memo to frame the investment opportunity absent complete references.

We will follow-up tomorrow with additional references and a specific recommendation. We welcome any feedback and questions in the meantime.

Appendix A. Technical References

Email

I just read through the Overview & Whitepaper. Elevation went way up.

Huge caveat: *I am not deep in this space and have not read other white papers.*

Impressions:

1/ Impressive. The breadth + depth of the technical work here was impressive. There's a lot of stuff here and superficially, it seems pretty reasonable. My impression is that a very smart, sane person surveyed the landscape, put it all together into a single system that makes sense and is run by a sane BDFL, and said "here it is."

2/ Lot of stuff to build. There's a lot of code to write here. They claim to have 15 amazing engineers for Telegram + this. It's probably plausible to have 1-2 incredibly high IQ engineers implement each of the major pieces and get a working PoC in 9 months but it'll probably take years to iron out all the kinks (especially given how security conscious everyone will want/need to be).

3/ Turtles all the way down. It's a little funny how it's literally block chains all the way down: Masterchain -> Workchains -> Shardchains -> Each block is a chain. Conceptually it makes sense and feels elegant, but I don't have an intuition for how expensive it is to have this many layers of transactions.

4/ Years to know if it actually works. The value of these systems rely on correctness. There's so much code to write + verify here that I think it'll take years to know if it actually worked. I felt like I was reading the manual/white paper for BSD Unix or something similar. You can conceptually wrap your head around the entire system but there's a lot of code to write by a few amazing engineers.

Overall, my net impression was a lot of excitement. This is the first blockchain/crypto manifesto that felt believable to me (from a technical perspective). It wasn't obscure currencies all the way down with convoluted interoperating micropayments. It felt like a thoughtfully, well-designed end-to-end system with the right amount of decentralization.

All that said, it's hard to really absorb 140 pages of technical documentation in two hours and I have no domain expertise.

In terms of diligence, I would do a few things:

1. Canvas smart, technical crypto folks and get their thoughts. This feels like most important step.
2. Canvas Telegram skeptics (e.g., [REDACTED]) and get their devil's advocate perspective.
3. Under Telegram's actual usage/engagement to see how honest (vs. sales-y) the founders are (i.e., how do facts match the reality we see).

Let me know how I can help. Exciting stuff.

[REDACTED]

Had a chance to review it. IMHO it's very ambitious and arguably too complicated. A lot of the stuff they talk about no one has really gotten to work yet. I also have concerns that the network that would be created here wouldn't be genuinely decentralized (albeit that's not the end of the world given the use-case).

That said, I have a soft spot for wanting to see a company with a huge mobile presence and usability chops try to force a cryptocurrency onto their users.

I think this could be worth an investment on that basis unless the valuation numbers are batshit.

Appendix B. Telegram Analysis via [REDACTED]

(data from App Annie and other publicly available data)

Summary

Telegram is highly penetrated in many Middle Eastern, Eastern Europe and Central Asian countries. High penetration is correlated with higher engagement - higher time spent, higher number of sessions, higher stickiness, higher open rates. They are starting to grow in India and Brazil (low penetrations though). As they begin to tip in more countries their engagement will likely only grow. However, they have not increased their penetration in Whatsapp strong countries.

User Growth

Telegram has about 180 M monthly active users which is growing roughly at 50 % Y/Y. Roughly 500k install the app each day primarily from Eastern Europe, Middle East, Central Asia, India and Brazil. Their penetration in Uzbekistan is about 90 %, Iran at 80%, Iraq, Ukraine, Russia, Saudi Arabia, UAE all around 40% and Singapore, Indonesia around 20%. The weekly and monthly open rates (i.e % of people that open the app if installed) are also highly correlated with penetration - and are very high for high penetration countries > 80%. Their biggest growth is in India and Brazil with the US and UK having some of the lowest penetrations and growth.

Engagement

- Retention - The day 1 and day 30 retention rates are 50% and 26% in the US. This about the same for Whatsapp in the US. It is very likely that the retention rates are much higher in highly penetrated countries such as Uzbekistan and Iran (we don't have data).
- Stickiness- The median number of days that users are active in the last 28 (L28) is 14 globally for Telegram. It is very likely that this number is much higher in highly penetrated countries and is in the same order as Whatsapp below. The DAU/MAU for the app is 50 %. DAU/MAU for Whatsapp is around 80% but was lower at this stage and Facebook in the US at 77 %. DAU/MAU is very likely high in Iran and Uzbekistan.

| Name | L28 | DAU/MAU |
|---------------|-----|---------|
| Youtube | 14 | 0.52 |
| Facebook | 21 | 0.66 |
| FB Messenger | 16 | 0.58 |
| Whatsapp | 22 | 0.80 |
| Instagram | 15 | 0.54 |
| google photos | 7 | 0.25 |
| google plus | 4 | 0.13 |
| hangouts | 3 | 0.10 |
| snapchat | 16 | 0.58 |
| twitter | 13 | 0.44 |
| viber | 13 | 0.42 |
| line | 17 | 0.58 |
| imo | 11 | 0.38 |
| pinterest | 7 | 0.27 |
| linkedin | 8 | 0.28 |

- Time spent - Overall time spent has stayed steady at 22 minutes with highly penetrated countries much higher. Iran users spend 50 minutes/day; Uzbekistan 32 minutes/day which have been growing. The number of sessions overall is 16 /day again skewed higher in highly penetrated countries.

Appendix C. Screenshot of [REDACTED] telegram cryptocurrency groups.

